IN THE SPECIFICATION:

Please replace paragraph number **[0021]** with the following rewritten paragraph:

[0021] The apparatus and methods of the present invention apply a modified Fick Equation to calculate changes in partial pressure of carbon dioxide (P_{CO_2}), flow, and concentration to evaluate the cardiac output or pulmonary capillary blood flow of a patient. The traditional Fick Equation, written for CO_2 is:

$$Q = \frac{V_{CO_2}}{\left(C_{v_{CO_2}} - C_{a_{CO_2}}\right)},$$

where Q is pulmonary capillary blood flow ("PCBF"), V_{CO_2} is the output of CO_2 from the lungs, or "CO_2 elimination," and Ca_{CO_2} and Cv_{CO_2} are the CO_2 contents of the arterial blood and venous blood CO_2, respectively. It has been shown in the prior work of others that cardiac output can be estimated from calculating the change in the fraction or volume of CO_2 exhaled by a patient and the partial pressure of end-tidal CO_2 as a result of a sudden change in ventilation. That can be done by applying a differential form of the Fick Equation, as follows:

$$Q = \frac{V_{CO_{21}}}{\left(C_{v_1} - C_{a_1}\right)} = \frac{V_{CO_{22}}}{\left(C_{v_2} - C_{a_2}\right)},$$

where ~~Ca_{CO_2}~~ Ca is the CO_2 content of the arterial blood of a patient, ~~Cv_{CO_2}~~ Cv is the CO_2 content of the venous blood of the patient, and the subscripts 1 and 2 refer to measured values before a change in ventilation and measured values during a change in ventilation, respectively. The differential form of the Fick Equation can, therefore, be rewritten as:

$$Q = \frac{V_{CO_{2l}} - V_{CO_{22}}}{\left(C_{v1} - C_{a1}\right) - \left(C_{v2} - C_{a2}\right)}$$

or

$$Q = \frac{\Delta V_{CO_2}}{\Delta C_{a_{CO_2}}} = \frac{\Delta V_{CO_2}}{s\Delta PetCO_2},$$

where ĆVCO_2 is the change in CO_2 elimination in response to the change in ventilation, ĆCa$_{CO_2}$ is the change in the CO_2 content of the arterial blood of the patient in response to the change in ventilation, ĆPet$_{CO_2}$ is the change in the partial pressure of end-tidal CO_2, and *s* is the slope of a CO_2 dissociation curve known in the art. The foregoing differential equation assumes that there is no appreciable change in venous CO_2 concentration during the re-breathing episode, as demonstrated by Capek. Also, a CO_2 dissociation curve, well known in the art, is used for determining CO_2 concentration based on partial pressure measurements.

Please replace paragraph number **[0038]** with the following rewritten paragraph:

[0038] FIG. 6 is a schematic representation of an alternative embodiment similar to the embodiment shown in ~~FIGs.~~ FIGS. 5A-5C, wherein the volumes of the inspiratory course and expiratory course of the breathing circuit are adjustably expandable;